



BOARD OF WATER SUPPLY
COUNTY OF MAUI
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WAILUKU, MAUI, HAWAII 96793-7109
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QUALITY CONTROL

May 9, 1997

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: OLINDA WATER TREATMENT FACILITY UPGRADES
NEGATIVE DECLARATION
TMK 2-3-06:006, KULA, MAUI

The County of Maui Board of Water Supply (BWS) is the proposing agency for the above referenced project. The proposed Olinda Water Treatment Facility Upgrades will comply with the Surface Water Treatment Rule and provide additional potable water to the Kula water system. The existing treatment process will be altered by replacement of the existing valveless filters with a microfiltration system and filtration building, new percolation pond and a decant recycle pump station. The existing cesspool will be demolished and a septic tank and leach field will be provided to replace it. A new emergency generator will be provided to enable operation of essential components of the facility during power outages.

The BWS reviewed and responded to comments related to the draft environmental assessment for the Olinda Water Treatment Facility Upgrades. The BWS determined that implementation of this project will not have significant environmental effects. This determination is based on the significance criteria listed in 11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed below:

1. The proposed project will not result in an adverse commitment, loss, or destruction of any natural or cultural resources.

"By Water All Things Find Life"

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Mr. Gary Gill, Director

May 9, 1997

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2. The range of beneficial uses of the environment will not be curtailed. The proposed project will not curtail the use of the surrounding environment as forest reservation area..
3. The project will not conflict with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court orders or executive orders.
4. The proposed project will not adversely affect the economic or social welfare of the community or state. The project will improve the social welfare of the community by enhancing the flexibility and reliability of this Upper Kula Water System..
5. The project will not adversely affect public health. The project will improve public health by providing public drinking water in conformance with the DOH water treatment requirements.
6. The project will not involve substantial adverse secondary impacts, such as population changes or effects on public facilities. The proposed project will upgrade existing public facilities.
7. The project will not change any policy concerning the issuing of additional water meters. The additional water policy remains intact since this project does not provide any increase in the source capacity.
8. The project will not involve a substantial degradation of environmental quality.
9. The project will not include cumulative considerable effect upon the environment nor involves a commitment for larger actions. The proposed actions are complete and will require no further action.
10. The project will not substantially affect a rare, threatened or endangered species, or its habitat.
11. The project will not detrimentally affect air or water quality or ambient noise levels. Short-term impacts will occur during the construction phase. Treatment of backwash water and settled solids will be in a manner approved by the Hawaii Department of Health.

Mr. Gary Gill, Director
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12. The project will not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.
13. The project will not affect scenic vistas and viewplanes.
14. The project will not require substantial energy consumption.

Therefore, the agency is issuing a negative declaration. Please publish this notice in the May 23, 1997 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA. If you need additional copies, please contact James Okazaki at (808) 529-7269, or any questions, please contact myself or Mr. Herb Kogasaka, County of Maui, at (808) 243-7835.

Sincerely,



David R. Craddick
Director

/HK:sc
Enclosures

xc: James Okazaki, M&E Pacific

1997-06-08 - MA - FEA - Olinda Water
Treatment Facility

JUN 8 1997

FILE COPY

**FINAL
ENVIRONMENTAL ASSESSMENT**

Olinda Water Treatment Facility Upgrades

TMK: 2-3-06: por. 06

M & E Pacific, Inc.
Consulting Engineers

**FINAL
ENVIRONMENTAL ASSESSMENT**

Olinda Water Treatment Facility Upgrades

TMK: 2-3-06: por. 06

Prepared for

**Board of Water Supply
P.O.Box 1109
Wailuku, Maui, Hawaii 96796-7109**

Responsible Official:

David Craddick, Director

Prepared by

**M&E Pacific, Inc.
1001 Bishop Street, Pauahi Tower, Suite 500
Honolulu, Hawaii 96813-3497**

May 1997

FINAL

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1.0 INTRODUCTION

The Olinda Water Treatment Facility (WTF) serves areas of Upper Kula. The proposed upgrades will bring the existing facility in compliance with the filtration requirements set forth by the State Department of Health (DOH) and will improve the water quality within the Upper Kula water system.

The project consists of replacing the existing valveless Permutit® filters with microfiltration units. These filters are equipped with and will provide membrane barrier protection, automatic controls for backwashing, filter-to-waste, and other built-in control systems that prevent the release of untreated or partially treated water into the distribution system. The existing filtered water pumps, balancing tank, and the recycle pump station will be replaced with new components. This project also includes the installation of an emergency generator and fuel storage tank, and replaces the existing cesspool with a septic tank and leach field.

Due to the extent of the proposed modifications to the facility, this project is classified as being more than a part of the normal routine repair and maintenance program. According to 343-5 of the Hawaii Revised Statutes (HRS), an environmental assessment (EA) is required because the proposed action includes the use of Maui County funds.

This EA was prepared pursuant to Title 11, Chapter 200 of the Hawaii Administrative Rules (HAR). The purpose of preparing this EA was to determine if the impacts of the proposed action are significant enough to warrant the preparation of an environmental impact statement.

2.0 IDENTIFICATION OF AGENCIES

2.1 Proposing Agency

The Olinda WTF project is an agency action as defined in the State of Hawaii Office of Environmental Quality *A Guidebook for the Hawaii State Environmental Review Process* (August 1992). The proposing agency is the Board of Water Supply (BWS), County of Maui.

2.2 Approving Agency

Since the proposed project is an agency action, the Notice of Determination will be issued by the proposing agency, the Board of Water Supply, County of Maui.

2.3 Agencies Consulted

The following agencies and organizations were consulted during project planning and the EA document preparation:

- *State of Hawaii*

- Department of Health (DOH)
 - Safe Drinking Water Branch
 - Clean Water Branch

- Department of Land and Natural Resources (DLNR)
 - Historical Preservation Division
 - Forestry & Wildlife Division

- *County of Maui*

- Board of Water Supply

- *Private and Community Organizations*

- Memtec American Corporation, Memcor Division

3.0 NEED FOR PROPOSED ACTION

The Olinda WTF serves a critical role in the Upper Kula water system. It receives water from both the Waikamoi and Kahakapao reservoirs. A 36-inch transmission line provides water to the Olinda facility from either the Waikamoi or the Kahakapao reservoirs. Water is currently treated by chemical coagulation, sedimentation, and filtration prior to distribution to the Upper Kula water system.

Due to the recent changes in the Federal Standards, the Olinda WTF process is no longer acceptable and must be replaced with an approved filtration system. The newly promulgated Surface Water Treatment Rule (SWTR) ratified by the Environmental Protection Agency (EPA) requires additional treatment steps (i.e., filter-to-waste capability, redundancy, reduction in production capacity per square foot of media) which are not currently available at the Olinda WTF. Per SWTR, upgrading the existing facility with the implementation of alternative technologies is allowed. These technologies would be required to demonstrate their acceptability through pilot studies or per approval by the EPA.

Surface runoff collected and stored for treatment at Olinda WTF is typically high in color, with levels regularly exceeding 150 color units. Most of the color can be attributed to the catchment area that is densely vegetated and laden with organic debris such as leaves and wood in various stages of decomposition.

While color is not currently regulated as a primary drinking water standard, levels above 15 color units generally pose a problem with aesthetics (appearance, odor, taste, etc.). Color removal by coagulation, flocculation, and sedimentation processes in combination with the existing valveless Permutit® filters has been excellent, consistently achieving filtered water levels below 5. However, modifications are required due to the regulatory mandates. No modifications are proposed for the existing coagulation, flocculation, and sedimentation processes.

As required by the regulations and at the recommendation of the DOH, the Board of Water Supply (BWS) completed pilot testing with a microfiltration technology on December 4, 1996. Results of this testing are extremely promising and are available upon request from the BWS. Although higher in capital costs than other approved filtration processes, it was determined that the advantages associated with the microfiltration system outweighed and justified the higher initial cost.

4.0 TECHNICAL DESCRIPTION OF PROPOSED ACTION

4.1 Project Location

The subject property is identified as an approximately 12.0-acre portion of Tax Map Key (TMK) 2-3-06: 06, which is located within the Makawao district of Maui County

and also within the State Land Use Agriculture District. Project location maps are shown in *Figures 1, 2, and 3*. The subject property includes a conventional treatment facility. The major existing features include operations and chemical building, flocculation basins, sedimentation basin, Permutit[®] valveless filters, balancing tank, filtered water pumping station, clear well, sludge lagoons, wash water holding basin, and a decant recycle pump.

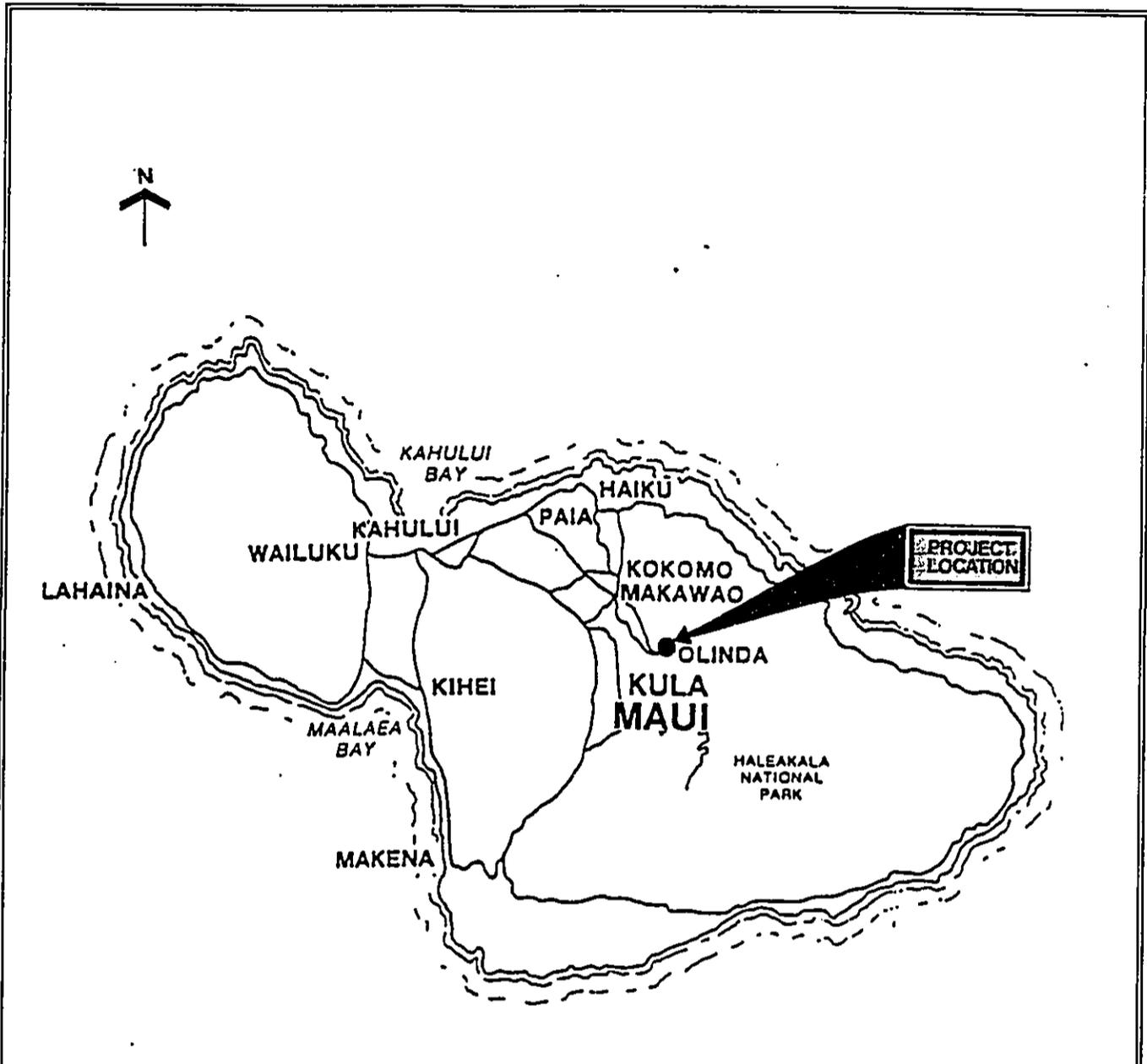
The landowner of the TMK parcel is identified as the Maui County. The proposed project will be conducted within the existing site.

4.2 Overview of Proposed Facility

The proposed Olinda Water Treatment Facility will comply with process requirements set forth by the DOH and improve water quality for the Upper Kula water system. The proposed facility schematic is presented in *Figure 4*. The existing treatment process units will serve as is except for the Permutit[®] valveless filters, balancing tank, filtered water pumps, washwater holding pond, and decant recycle pump station which will be abandoned-in-place. A new balancing tank, filtered water pumps, and decant recycle pump will be provided to serve the proposed microfiltration system. A new percolation pond will be provided for the disposal of overflow from the new decant recycle pump station. The existing cesspool will be demolished and a septic tank and leach field system will be provided to accommodate the sanitary wastes generated at the existing operations and chemical building. An emergency generator and fuel storage tank shall be provided to enable operation of critical components at the facility during power failures.

Water will be pumped from the sedimentation basin to the microfiltration system. Filtered water will be disinfected by the existing disinfection system and pumped to the existing three (3.0) million gallon clear well. The treated water will then be distributed by gravity to service the Upper Kula water system.

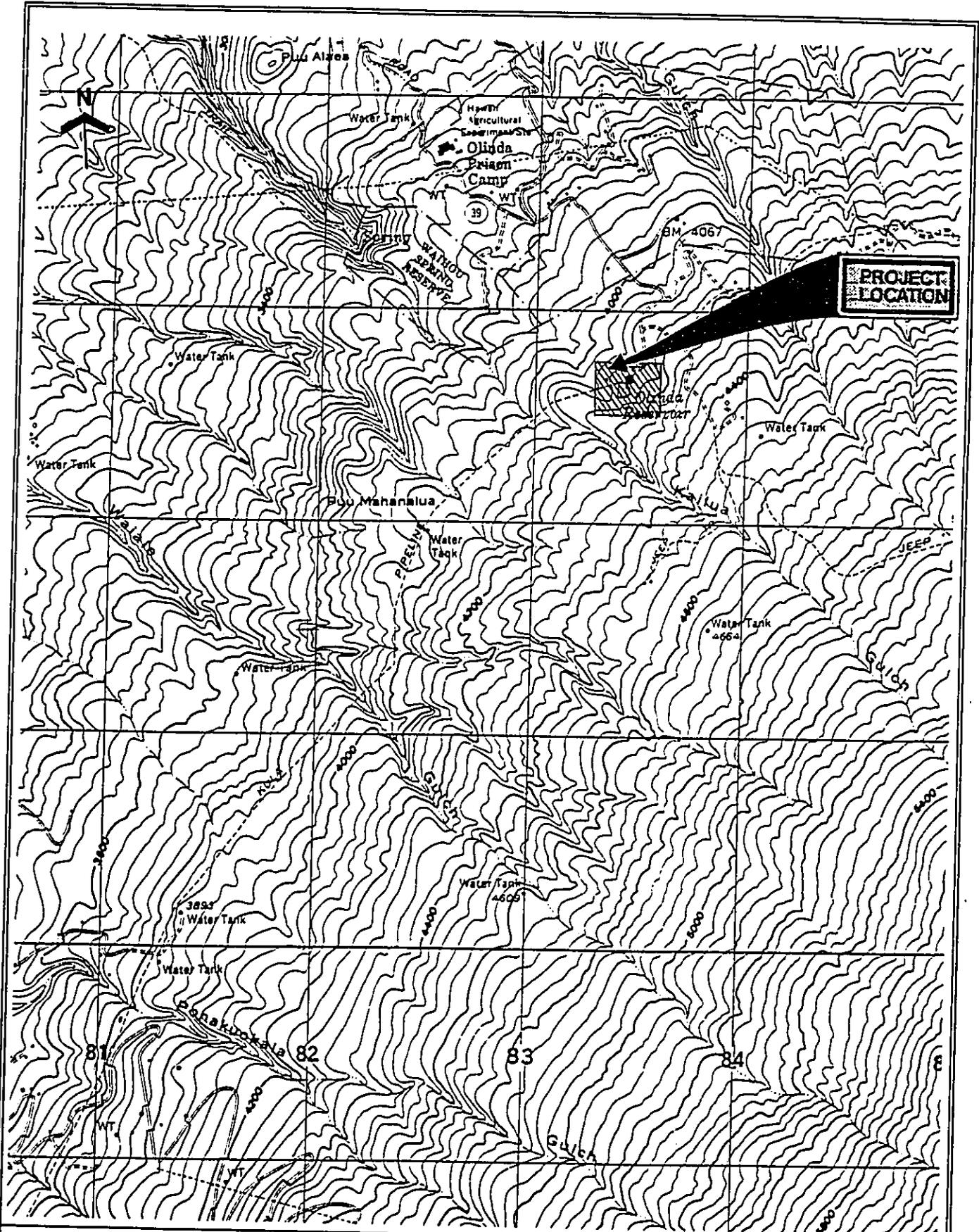
The proposed Olinda WTF will be designed to provide a peak capacity of 2.5 mgd. This will be achieved by installing two (2) 900M10C microfiltration units. Provisions to enable the installation of a third unit in the future will be provided in this design.



PROJECT LOCATION MAP
NO SCALE

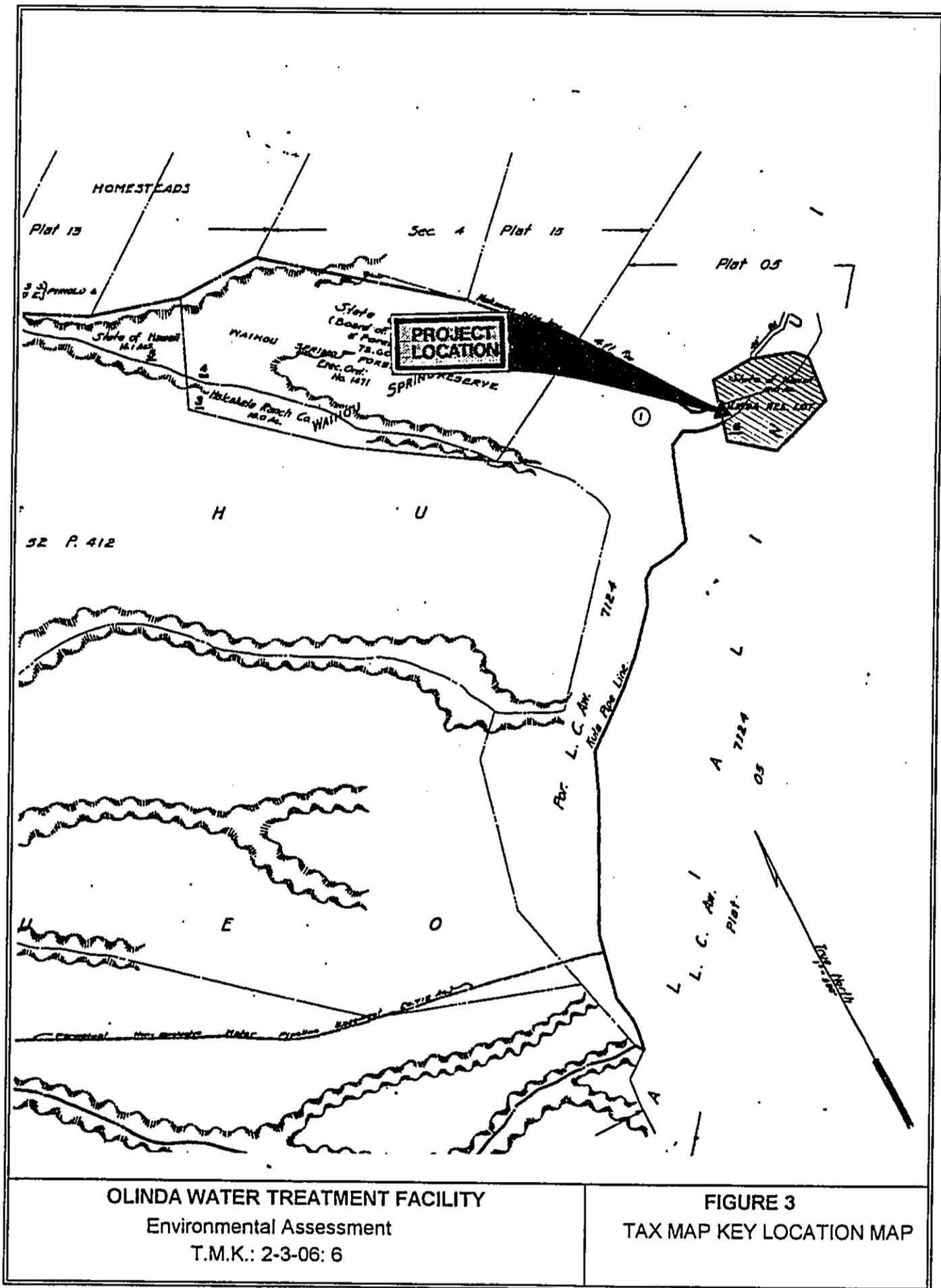
OLINDA WATER TREATMENT FACILITY
Environmental Assessment
T.M.K.: 2-3-06: 6

FIGURE 1
VICINITY LOCATION MAP



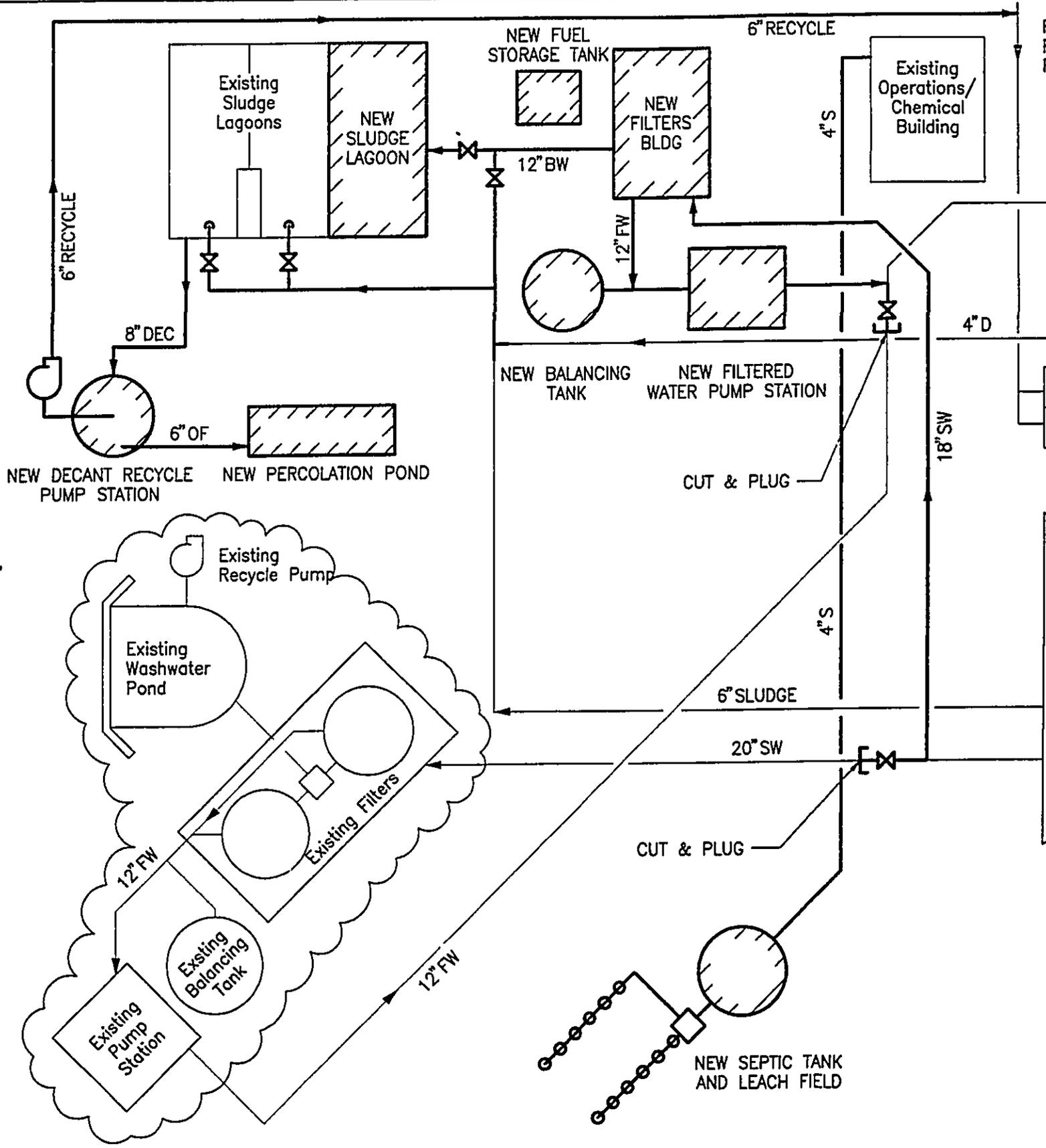
OLINDA WATER TREATMENT FACILITY
 Environmental Assessment
 T.M.K.: 2-3-06: 6

FIGURE 2
 REGIONAL LOCATION MAP



OLINDA WATER TREATMENT FACILITY
 Environmental Assessment
 T.M.K.: 2-3-06: 6

FIGURE 3
 TAX MAP KEY LOCATION MAP



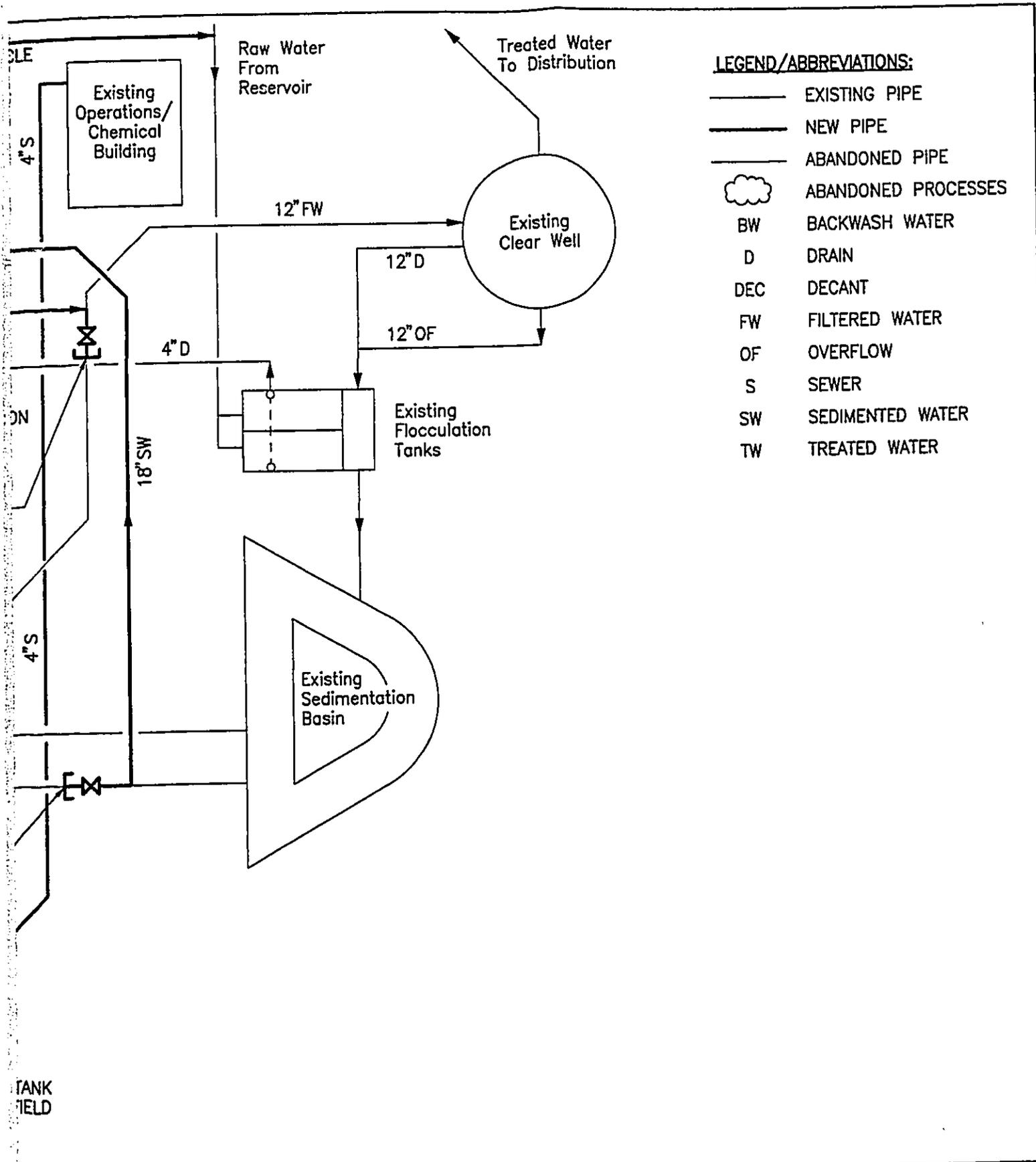
(K.T.) CURRENT OLINDA PER EA - SCH
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M&E Pacific, Inc.
 ENGINEERS & ARCHITECTS
 SUITE 600, PARAHU TOWER - 1001 KENNEDY ST., HONOLULU, HAWAII 96813

OLINDA WATER TREATMENT FACIL

Environmental Assessment

TMK: 2-3-08.8



**WATER TREATMENT FACILITY
Assessment**

3-0688

**FIGURE 4
FACILITY SCHEMATIC**

While the SWTR requires redundant process units for dependability, this is not a critical issue at Olinda WTF. The distribution system is tied to the Lower Kula water system. During scheduled maintenance periods or emergencies, treated water from the Piiholo WTF can be pumped up to the Omaopio tank for service to the majority of the Upper Kula water system. Connections above the Omaopio tank will be serviced from the storage at the 3.0 MG clear well at the Olinda WTF. By maintaining the clear well at a minimum of 2/3 capacity, potable water demand for this area can be met for up to 28 days (at an average demand of 70,000 gpd), discounting water required for optimal fire protection.

4.3 Proposed Feed Water Pumping station

The feed water pumping station will consist of three (3) centrifugal pumps. These pumps will transfer water from the existing sedimentation basin to the microfiltration facility. Each pump will have a capacity of 1675 gpm @ 90 ft TDH. The pumps will be provided with Variable Frequency Drives to meet the varying flow requirements of the microfiltration units. A self-cleaning strainer will be provided downstream of each pump to remove solids greater than 500 microns in size.

4.4 Proposed Water Treatment System

The treatment of surface water will incorporate the use of microfiltration technology. Two (2) 900M10C modular Memcor[®] Continuous Microfiltration (CMF) units will be housed in a building west of the control building. The CMF units house hollow fiber membranes that physically strain suspended solids, biomass, and microorganisms from the feed water through 0.2 micron openings in the membrane fiber.

The CMF hollow fiber filters require periodic physical and chemical cleaning due to the accumulation of solids. The physical cleaning process, commonly referred to as backwashing, consists of flushing solids from the membrane surface via the introduction of reverse flow compressed air and feed water. The air loosened solids are flushed with feed water and delivered to the settling lagoons. This cleaning process requires no chemical addition, and backwash stream consists of raw water, chemicals from coagulation and flocculation, and solids captured on the membrane during filtration. The design also enables the recycle of backwash water from the

sludge lagoons to the head of the facility. A percolation pond will be provided to handle any unforeseen overflows experienced at the decant recycle pump station.

Normal operation and maintenance also includes a chemical filter-cleaning process which is undertaken every four to six weeks (estimated). The process consists of washing the filter membranes with a 2% sodium hydroxide solution and a citric acid solution. Following the chemical cleaning process, the filter membranes are washed with water, blown with air, and the wash water is directed to the sludge lagoons which have a combined volume of 400,000 gallons. The relative weakness of the solution complemented with the large volume of the water in the lagoon results in negligible impact of the chemical residual to the environment. The cleaning solutions can typically be reused a number of times before fresh solutions are required. Between cleaning intervals, the cleaning solution will be stored in a Clean-in-Place (CIP) storage tank. Spent cleaning solution will be pH neutralized and hauled to a wastewater treatment facility for disposal.

4.5 Cost of Proposed Action

The proposed action includes the use of Board of Water, County of Maui funds. The total construction cost is estimated at \$ 3.5 million.

5.0 SUMMARY OF AFFECTED ENVIRONMENT

5.1 Land Use

The subject property is zoned for agricultural and rural uses. There are no agricultural sub-classifications. The land is currently owned by the Maui County, Board of Water Supply and used as water treatment facility. All the improvements will be performed within the existing boundaries.

5.2 Water Bodies

Upcountry Maui stream flows are not consistent throughout the year. The major raw water source comes from Haipuaena, Puohokamoa, and Waiakamoi Streams, which is stored in the Waikamoi and Kahakapao reservoirs. There are numerous intakes from the tributary area. The tributary area is situated in the Ko'olau Forest Reserve. There

is no public access to the intakes. The Haipua'ena flume collects water from all these intakes and water is diverted to Waikamoi reservoirs via a 48-inch CMP and Kahakapao reservoir via a new 36-inch transmission line. Raw water is conveyed to the treatment facility by a 36-inch transmission line.

No process waters will be discharged to the State's receiving waters. The backwash water and drains will be recycled back to the head of the facility from sludge lagoons. Overflow from the recycle pump station will be disposed of by the proposed percolation pond.

5.3 Water Distribution System

The Olinda WTF is part of the Makawao water system. The 1990 Maui County Water Use and Development Plan, which conforms with the State Water Code (HRS Chapter 174C), states that the demand for domestic water in the Makawao district will increase as residential growth continues.

The Upper Kula water distribution system is comprised of a pipe network that includes over 120 miles of 3 to 12-inch pipe. Within the water distribution system, treated water is stored in 25 tanks of which five (5) are larger than 100,000 gallons. The system provides service to the areas of Olinda, Omaopio, Pulehuiki, Kamehameiki, Kealahou, Waiohuli, Naalae, Kaonoulu, Keokea, Kamaole, and Ulupalakua.

5.4 Topography

The project site is located in the Makawao district of Upcountry Maui (Figure 1) and surrounded by forest reserve area. Site elevations range between 4090 and 4140 feet above mean sea level (MSL). Slopes are irregular, and the undulating topography has an average 20% grade.

5.5 Geology and Soils

The soil at the proposed treatment site is classified as a Olinda loam (OND). The soil is developed from volcanic ash and material weathered from basic igneous rocks. The soil is slightly acid in the surface layer and subsoil. The soils are well drained, the runoff is slow to medium, and the erosion hazard is slight to moderate.

5.6 Climate

Rainfall in the area is high, greater than 100 inches annually and is well distributed throughout the year. Temperature is relatively low with annual average high at 71 °F and annual average low at 54 °F. Northeasterly winds persist throughout much of the year.

5.7 Archaeological Resources

The proposed action will be conducted within the existing facility site. No known historic sites are located within the subject property boundaries.

5.8 Biological Resources

The property is actively used as a water treatment facility. No threatened or endangered species habitat has been located on the subject property. Native species have not been found within the boundary of the facility.

5.9 Infrastructure

The proposed site is accessed via a dirt road that connects the existing facilities to the Olinda Road. Electrical power and telephone communication lines are available within the subject area.

6.0 ENVIRONMENTAL CHARACTERISTICS AND IMPACTS OF PROPOSED ACTION

6.1 Surface Water Quality

Raw water to the Olinda Facility is conveyed from both the Kahakapao and Waikamoi reservoirs via a 36-inch transmission line. Flow to the facility is regulated by the influent control valve. The facility provides approximately 1.4 mgd of potable water to the distribution system. Based on the Olinda facility records, raw water quality ranges are as follows:

- Color (CU) 66-190
- Turbidity (NTU) 1.09-3.82

- Alkalinity as CaCO₃ (mg/l) 3-17
- pH 6.2-7.55
- Temperature(°C) 12.8-22.2

The backwash water from the microfiltration system and drains from both flocculation and sedimentation tanks will be discharged to the sludge lagoons. The clarified backwash water will be recycled back to the head of the facility. The overflow from the recycle pump station will be diverted to the proposed percolation pond. There is no discharge from the proposed facility to any surface water bodies.

6.2 Solids Management

Solids captured on the bottom of both the sedimentation basin and the sludge lagoons will be periodically removed. These solids consist primarily of coagulants (such as Alum and soda ash), dirt, organic silt, algae and other organisms commonly found in the surface water. Concentrated sludge will be dewatered and disposed on site.

6.3 Grading and Drainage

The proposed project will develop two major units; the microfiltration building and the filtered water pumping station. These actions may involve modifications to the existing roads on site along with some altering of the existing grades and modifications to the existing structures. The preventive actions that will be taken to address these on site construction impacts during and after the construction include the following:

- *During construction*

Temporary erosion control structures (silt fences, swales, etc.).

- *After Construction*

All slopes and exposed areas will be sodded or planted once final grades have been established. All storm water runoff is currently and will continue to flow into Kailua Gulch.

7.0 MITIGATION MEASURES

7.1 NPDES Permit Requirements

No process water will be discharged into State waters. Decant from the sludge lagoons will be recycled back to the head of the facility. The overflow from the recycle pump station will be discharged to the proposed percolation pond to percolate. An NPDES permit will not be required, pursuant to Section 402 of the Clean Water Act, Chapter 342 D, Hawaii Revised Statutes, and Chapter 11-55, Hawaii Administrative Rules, Department of Health.

7.2 UIC Permit Requirements

No underground injection well will be constructed within the project site. A percolation pond will be provided for underground disposal of decant overflow. A UIC permit will not be required, under Chapter 23 of Title 11, Hawaii Administrative Rules, Department of Health.

7.3 Solids Management Considerations

On site disposal of solids will consist of dewatered sedimentation basin solids. Disposal will be handled on site and will not have any significant adverse impact on the surrounding environment.

7.4 Engineering and Construction Measures

Standard storm water and sediment control measures (e.g., silt fences, detention ponds) will be implemented during the construction phase of the project as required. Since the disturbed area within the project site is less than five (5) acres and it is anticipated that runoff will not generate significant adverse impact to State waters during construction period, an NPDES storm water construction permit will not be required. There are no residences or other sensitive receptors located near the project site.

8.0 ALTERNATIVES TO THE PROPOSED ACTION

8.1 No Project

The construction of Olinda Water Treatment Facility will improve the potable water quality within the Upper Kula water system. Basically, the existing facility does not comply with the process requirements set forth by the DOH. The continued distribution of water treated by the existing facility would be a violation under the new regulations. For this reason, the proposed action is necessary.

8.2 Alternative Site

The proposed site is located on land owned by the County of Maui, Board of Water Supply. The proposed project location utilizes existing developed water source, a conveyance pipeline, treatment facilities, and distribution system. The proposed site is remote from residences and other sensitive receptors.

Use of alternative site would mean abandoning all the existing processes, structures, piping and infrastructure and rebuilding the same at the new site. Also, the search for a suitable alternative site would require time to site a new facility, time to procure additional funding to cover the cost of infrastructure development, and time to enable the purchase of land. These actions would require approval of numerous agencies. The Maui Board of Water Supply is under a strict compliance order to upgrade the Olinda facility to the SWTR standards by 1998. The utilization of the existing facilities is the most cost effective and expeditious alternative.

8.3 Alternative Technology

Based on the SWTR requirements, the existing conventional treatment facility is required to be in compliance by 1998. The existing single-media valveless pressure filters require replacement. A number of filtration technologies are currently available that may be used to enable compliance. The DOH has approved the use of dual-media and multi-media gravity filters for surface water treatment for the State of Hawaii. Major facilities incorporating these technologies in the State include: Piiholo WTF, Maui (dual-media); Mahinahina WTF, Maui (dual-media); and Waimea WTF, Hawaii (multi-media).

In addition to these approved filtration techniques, the DOH allows the use of any alternative technology provided that the performance and applicability is proven based on pilot studies or use at similar facilities. Treatment upgrades employing microfiltration process are currently being constructed at Lahaina WTF and Kamole Weir WTF. Microfiltration technology was chosen for Olinda WTF due to the following considerations:

- Suspended solids, biomass and microorganisms are removed from the influent water.
- Pilot studies have been conducted at the Olinda facility which have indicated successful treatment to meet the criteria specified by the SWTR.
- Microfiltration units are modular and can be transplanted to another facility or added to, if necessary.
- Less land area is required in comparison to other treatment alternatives specified in the SWTR.
- Less operator attention is required. While the facility continues to use chemical coagulation for color removal, replacing existing Permutit® filters with microfiltration system will lower the requirement for operator attention. This is due to the fact that routine maintenance of microfiltration units is much simpler and operator-friendly.

9.0 DETERMINATION

In accordance with Title II, Chapter 200, Environmental Impact Statement Rules, this environmental assessment has characterized the technical and environmental nature of the project, identified potential impacts, and evaluated the potential significance of these impacts.

It is determined that the proposed Olinda WTF project will not significantly impact the environment. Therefore, a Negative Declaration has been issued for this project. This determination is based on the significance criteria listed in §11-200-12 of the

Environmental Impact Statement Rules. Specifically, these significance criteria are addressed below:

1. The proposed project will not result in an adverse commitment, loss, or destruction of any natural or cultural resources.
2. The range of beneficial uses of the environment will not be curtailed. The proposed project will not curtail the use of the surrounding environment as forest reservation area.
3. The project will not conflict with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court orders or executive orders.
4. The proposed project will not adversely affect the economic or social welfare of the community or state. The project will improve the social welfare of the community by enhancing the flexibility and reliability of the Upper Kula water system.
5. The project will not adversely affect public health. The project will improve public health by providing public drinking water in conformance with the DOH water treatment requirements.
6. The project will not involve substantial adverse secondary impacts, such as population changes or effects on public facilities. The proposed project will upgrade existing public facilities.
7. The project will not change any policy concerning the issuing of additional water meters. The additional water policy remains intact since this project does not provide any increase in the source capacity.
8. The project will not involve any substantial degradation of environmental quality.
9. The project will not include cumulative considerable affect upon the environment nor involves a commitment for larger actions. The proposed actions are complete and will require no further action.
10. The project will not substantially affect a rare, threatened or endangered species, or its habitat.

11. The project will not detrimentally affect air or water quality or ambient noise levels. Short-term impacts will occur during the construction phase. Treatment of backwash water and settled solids will be in a manner approved by the DOH.
12. The project will not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.
13. The project will not affect scenic vistas and viewplanes.
14. The project will not require substantial energy consumption.

10.0 REFERENCES

- Board of Water Supply, County of Maui, 1996. *Protocol Testing for Memcor M10C Membrane Modules at the Olinda Water Treatment Facility*, prepared for the Hawaii Department of Health, Safe Drinking Water Branch
- Hawaii Department of Health, Safe Drinking Water Branch, 1994 (revised). *Surface Water Treatment Rule, Administrative Manual*.
- Hawaii Department of Health, Safe Drinking Water Branch, 1994 (revised). *Hawaii Administrative Rules, § 11-20, Rules Relating to Potable Water System*.
- Hawaii Department of Taxation, *Tax Map for Second Division, Zone 2, Section 5, Plat 4, Parcel 80*.
- Kennedy/Jenks Engineers, 1982. *Final Design Criteria Report for Olinda Water Treatment Plant, Upper Kula Water System*, prepared for the Board of Water Supply, County of Maui.
- M & E Pacific, Inc., 1997. *Preliminary Engineering Report for Olinda Water Treatment Facility*, prepared for the Board of Water Supply, County of Maui.
- M & E Pacific, Inc., 1991. *Water Use and Development Plan for the Island of Maui*, prepared for the Board of Water Supply, County of Maui.
- Memtec American Corporation, Memcor Division, 1994. *Memcor Continuous Microfiltration Technology for Surface Water and Groundwater Under the Influence*.
- United States Department of Agriculture Soil Conservation Service, 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*.
- U.S. Geological Survey, 1957. *Topographic Map of Maui, Hawaii, Scale 1: 24,000*.

APPENDIX -- COMMENTS FROM CONSULTED PARTIES

- Planning Department, County of Maui
- State Historic Preservation Division, DLNR, State of Hawaii
- Office of Planning, Department of Business, Economic Development & Tourism, State of Hawaii
- Department of Land and Natural Resources, State of Hawaii
 - * *Response to Comments from DLNR*
- Department of Health, State of Hawaii
 - * *Response to Comments from DOH*
- Department of Hawaiian Home Lands, State of Hawaii
- Natural Resources Conservation Service, U.S. Department of Agriculture
- Office of Hawaiian Affairs, State of Hawaii
- Office of Environmental Quality Control, State of Hawaii
 - * *Response to Comments from DOH*

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

10.0 REFERENCES

- Board of Water Supply, County of Maui, 1996. *Protocol Testing for Memcor M10C Membrane Modules at the Olinda Water Treatment Facility*, prepared for the Hawaii Department of Health, Safe Drinking Water Branch
- Hawaii Department of Health, Safe Drinking Water Branch, 1994 (revised). *Surface Water Treatment Rule, Administrative Manual*.
- Hawaii Department of Health, Safe Drinking Water Branch, 1994 (revised). *Hawaii Administrative Rules, § 11-20, Rules Relating to Potable Water System*.
- Hawaii Department of Taxation, *Tax Map for Second Division, Zone 2, Section 5, Plat 4, Parcel 80*.
- Kennedy/Jenks Engineers, 1982. *Final Design Criteria Report for Olinda Water Treatment Plant, Upper Kula Water System*, prepared for the Board of Water Supply, County of Maui.
- M & E Pacific, Inc., 1997. *Preliminary Engineering Report for Olinda Water Treatment Facility*, prepared for the Board of Water Supply, County of Maui.
- M & E Pacific, Inc., 1991. *Water Use and Development Plan for the Island of Maui*, prepared for the Board of Water Supply, County of Maui.
- Memtec American Corporation, Memcor Division, 1994. *Memcor Continuous Microfiltration Technology for Surface Water and Groundwater Under the Influence*.
- United States Department of Agriculture Soil Conservation Service, 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*.
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APPENDIX – COMMENTS FROM CONSULTED PARTIES

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- State Historic Preservation Division, DLNR, State of Hawaii
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- Department of Land and Natural Resources, State of Hawaii
 - * *Response to Comments from DLNR*
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 - * *Response to Comments from DOH*
- Department of Hawaiian Home Lands, State of Hawaii
- Natural Resources Conservation Service, U.S. Department of Agriculture
- Office of Hawaiian Affairs, State of Hawaii
- Office of Environmental Quality Control, State of Hawaii
 - * *Response to Comments from DOH*

LINDA CROCKETT LINGLE
Mayor



10297079

DAVID W. BLANE
Director

GWEN OHASHI HIRAGA
Deputy Director

RECEIVED

1997 FEB 12 AM 10:20

COUNTY OF MAUI
PLANNING DEPARTMENT
260 S. HIGH STREET
WAILUKU, MAUI, HAWAII 96793

COUNTY OF MAUI

February 11, 1997

Mr. David Craddick, Director
Board of Water Supply
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Craddick:

Re: **Draft Environmental Assessment for the Olinda Water Treatment Facility Upgrade, TMK: 2-3-06: 006, Makawao, Maui, Hawaii**

Thank you for transmitting the above subject Draft Environmental Assessment for our review and comment. The proposed development will replace the existing filters with microfiltration units. The project will also include the installation of an emergency generator and fuel storage tank, and replace the existing cesspool with a septic tank and leach field.

The Department of Planning has no objections to the proposal since the proposal will comply with the requirements of the U. S. Environmental Protection Agency and the State Department of Health.

If there are any questions, please contact this office.

Very truly yours,

A handwritten signature in cursive script, appearing to read "David W. Blane".

DAVID W. BLANE
Director of Planning

DWB:JH:jh
cc: Clayton Yoshida, Planning Program Manager
Julie Higa, Planner
General File
Project File
g:\planning\all\julie\Environm\Olinda.h2o

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

0297110

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

GILBERT COLOMA-AGARAM

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

RESOURCES ENFORCEMENT
CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION

DIVISION

LAND DIVISION
STATE PARKS
WATER AND LAND DEVELOPMENT

February 12, 1997

Mr. David Craddick, Director
Board of Water Supply, County of Maui
P.O. Box 1109
Wailuku, Maui, Hawaii 96793-7109

LOG NO: 18856 ✓
DOC NO: 9702SC05

Dear Mr. Craddick:

**SUBJECT: Chapter 6E-8 Historic Preservation Review of the Draft Environmental Assessment for the Olinda Water Treatment Facility Upgrade, Kula, Makawao District, Maui
TMK: 2-3-006: 006**

Thank you for the opportunity to comment on the draft Environmental Assessment prepared for the proposed upgrade of the existing Olinda Water Treatment Facility. The proposed upgrades include replacement of existing filters, water pumps, balancing tank, and recycle pump station. In addition, an emergency generator and fuel storage tank will be installed, and the existing cesspool will be replaced by a septic tank and leach field. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was made of the subject parcel.

While the land has not undergone an archaeological inventory survey, we have no record of historic sites on this parcel. The subject parcel has been extensively modified during the installation of existing water facilities so it is unlikely that significant historic sites are still present. Therefore, we believe that the proposed undertakings will have "no effect" on significant historic sites, if the project is carried out as described in this draft environmental assessment.

Should you have any questions, please feel free to call Sara Collins at 587-0013.

Aloha


DON HIBBARD, Administrator
State Historic Preservation Division

SC:jen

cc: Ms. Elizabeth Anderson, Cultural Resources Commission, Maui Planning Department,
250 S. High Street, Wailuku, HI 96793



0297437

**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

BENJAMIN J. CAYETANO
GOVERNOR
SEJI F. NAYA
DIRECTOR
RICK EGGED
DIRECTOR, OFFICE OF PLANNING

OFFICE OF PLANNING

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-6512

February 14, 1997

Mr. David R. Craddick
Director
Board of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-7109

Dear Mr. Craddick:

Subject: Draft Environmental Assessment for the Olinda Water Treatment
Facility Upgrade, Makawao, Maui, Hawaii, TMK:(2)2-3-06:006

Thank you for the opportunity to review and comment on the draft
environmental assessment for the subject project. We do not have any comments to
offer at this time.

If you have any questions, please call Howard Fujimoto of our CZM Program at
587-2898.

Sincerely,

Rick Egged
Director
Office of Planning

NJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES.

P.O. BOX 621
HONOLULU, HAWAII 96809

February 20, 1997

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

1997 FEB 24 PM 1:44
DEPUTY
GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREA-
TION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGER

LD-NAV
Ref.: COMOWTF.RCM

Honorable David R. Craddick
Director
Department of Water Supply
County of Maui
P.O. Bob 1109
Wailuku, Hawaii 96793-7109

Dear Mr. Craddick

SUBJECT: Review : Draft Environmental Assessment
Project : Olinda Water Treatment Facility Upgrade
Applicant : Department of Water Supply, County of Maui
Location : Makawao, Island of Maui, Hawaii
TMK : 2nd/ 2-3-06: 006

Thank you for the opportunity to review and comment on the draft environmental assessment pertaining to the Department of Water Supply, County of Maui's proposed Olinda Water Treatment Facility Upgrade project.

Our Commission on Water Resources Management has the following comments to offer on the proposed project:

"We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

Based on the information provided, it does not appear that a Stream Alteration Permit pursuant to Section 13-169-50, HAR, will be required before the project can be implemented."

Our Land Division, Maui District Land Office reviewed their office records pertaining to the ownership of the subject parcel and has the following comments to offer:

"The subject land is State owned which is currently under General Lease No. S-4540 to the County of Maui, Department of Water Supply. The lease is a 65 year lease and will expire on March 9, 2043.

Page 2
DEA Review
Board of Water Supply
Proposed Olinda Water Treatment
Project at Makawao, Maui

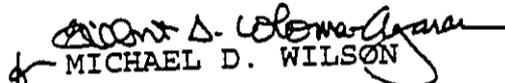
Condition No. 7, Improvements, of the subject lease states; in part, 'that the Lessee shall not at any time during said term construct, place, maintain and install on said premises any building, structure or improvements of any kind and description whatsoever except with the prior approval of the Board and such conditions as the Board may impose.' Therefore, the Department of Water Supply will need to obtain the Board of Land and Natural Resources' approval prior to their proposed project work."

The Department of Land and Natural Resources has no other comments to offer on the subject matter at this time.

Should you have any questions, please feel free to contact Philip Ohta, Maui District Land Agent at 984-8100 or Nick Vaccaro, Land Agent of the Land Division (Honolulu office), at (808)-587-0438.

HAWAII: Earth's best!

Aloha,


MICHAEL D. WILSON

c: Maui Land Board Member
Colbert M. Matsumoto, Esq.
Maui District Land Office



**BOARD OF WATER SUPPLY
COUNTY OF MAUI**

P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

April 30, 1997

Mr. Michael D. Wilson
DEPARTMENT OF LAND & NATURAL RESOURCES
STATE OF HAWAII
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Re: **OLINDA WATER TREATMENT FACILITY UPGRADES - RESPONSE TO
COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT**

Thank you for your comments dated February 20, 1997 on the draft Environmental Assessment (EA) for the above-referenced project. Provided below are the responses to your comments:

Item No. 1: Water Use and Development Plan:

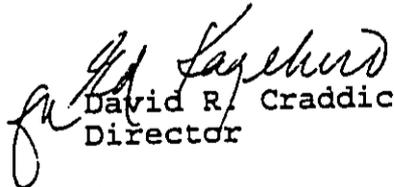
Comment noted.

Item No. 2: Board of Land and Natural Resources Approval:

The Board of Water Supply is currently in the process of obtaining approval from the Board of Land and Natural Resources for construction of the proposed developments. A copy of the letter is attached for your information.

Should you have any questions or need additional information, please contact our Engineering Division at (808) 243-7835 or myself.

Sincerely,


David R. Craddick
Director

HK:as
xc: Mr. James Okazaki (M&E Pacific)

"By Water All Things Find Life"

Printed on recycled paper 

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

0397007

RECEIVED

LAWRENCE MEDKE
DIRECTOR OF HEALTH

1997 MAR -3 PM 3:41

COUNTY OF MAUI In reply, please refer to:

February 24, 1997

97-015/epo

Mr. David R. Craddick, Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Maui, Hawaii 96793

Dear Mr. Craddick:

Subject: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
Project: Olinda Water Treatment Facility Upgrade
Location: Makawao, Maui, Hawaii
TMK: (2) 2-3-06:06

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Safe Drinking Water Concerns

1. All references to the "Board of Water Supply" should be replaced with "Maui Department of Water Supply" except in cases where the report is referring to the actual "Board" which sets the policies of the "Department of Water Supply."
2. On page 3, following the first sentence (after Olinda WTF), insert the following sentence: "In addition, the existing unacceptable filter system must be replaced with an approved filter system."
3. The entire second paragraph on page 3 is quite confusing and misleading. You say that raw water levels in excess of 150 color units is a major concern at Olinda WTF. Then you say that color removal by coagulation, flocculation, and sedimentation processes in combination with existing filters has been excellent. How excellent? Are the after-treatment levels down to the 15 color units, below which there are generally no problems with aesthetics? Or are they somewhere in between? Then you say that modifications are required due to regulatory mandates. It sounds like modifications are required to the color improving process,

which is not the case. The last sentence, beginning with "No modifications are proposed---", should follow the third sentence, which ends with "---Permutit filters has been excellent."

When you state that modifications are required due to regulatory mandates, you are probably referring to modifications that will remove and inactivate most of the bacteria and viruses and other deficiencies, rather than improving the color.

4. On page 3, 3rd paragraph, the 3rd sentence might be clearer if it read, "Although higher in capital costs than other approved filtration processes, it was determined that the advantages associated with the microfiltration system outweighed and justified the higher initial cost."
5. On page 4, Section 4.2, 1st paragraph, it is stated that limestone bed contactors will be provided at Waiakamoi reservoirs. Are these contactors for compliance with the Lead and Copper Rule? When will these contactors be constructed and placed into operation? How will this impact the other treatment processes discussed in the environmental assessment?
6. On page 4, the last sentence should be changed to read as follows: "By maintaining the clear well at a minimum of 2/3 capacity, potable water demand for this area can be met for up to 28 days (at an average demand of 70,000 gpd), discounting the water needed for optimal fire protection available from the stored water."
7. The total treatment process (filtration plus disinfection) for this system must achieve at least a 3-log (99.9 percent) removal and inactivation of Giardia and a 4-log (99.99 percent) removal and inactivation of viruses. In addition, an emergency plan, in the event of disinfection failure, shall be submitted to and receive approval from the Department of Health (DOH) prior to operation. The DOH Surface Water Treatment Rule Administrative Manual, Chapter 3, *Disinfection Criteria*, outlines the disinfection requirements.
8. Please note that additional comments will be forthcoming when we complete our review of the engineering report for the subject facility.

Mr. David R. Craddick
February 24, 1997
Page 3

97-015/epo

9. An operations manual shall be submitted to and receive approval from the DOH before the treatment plant goes into operation. The Department's Surface Water Treatment Rule Administrative Manual, pages 2-13, outlines these requirements. An updated operations manual shall be submitted in July of the year following approval of the original manual.

Comments on Figure 4:

There are a number of discrepancies in Figure 4, Facility Schematic.

1. Where is the filtered water chlorinated? The legend indicates that "CS" stands for chlorine solution, but no such line appears on the diagram.
2. There are a number of possible cross-connections shown. First, the abandoned in-place processes are isolated by means of valves. Since a valve is not adequate protection against backflow, these connections must be cut and plugged. In addition, the 12-inch drain and overflow lines from the existing clearwell will need to be evaluated to determine if there is a cross-connection with the existing flocculation tanks.
3. According to this schematic, backwash water can be discharged into either the new or existing pair of sludge lagoons. However, the diagram shows that the floc tank drain can only discharge into the existing pair of sludge lagoons. Please explain.

If you should have any questions regarding these comments, please contact Mr. Larry Whang or Ms. Queenie Komori of the Safe Drinking Water Branch at 586-4258.

Wastewater

We concur with and approve of the proposed method of wastewater treatment and disposal which consists of a treatment individual wastewater system. Should the County sewer service system become available in the future, we will require connection.

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62,

Mr. David R. Craddick
February 24, 1997
Page 4

97-015/epo

"Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions regarding these comments, please contact Ms. Lori Kajiwara of the Wastewater Branch at 586-4294.

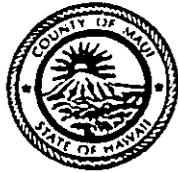
Sincerely,



BRUCE S. ANDERSON, Ph.D.
Deputy Director for Environmental Health

c: SDWB
WWB

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BOARD OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

April 3, 1997

Mr. Bruce Anderson, Ph.D.
Deputy Director
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Anderson:

**Subject: OLINDA WATER TREATMENT FACILITY
RESPONSE TO COMMENTS FROM DOH**

Thank you for your comments concerning the above referenced project. We offer the following modifications to the Draft Environmental Assessment as follows:

SAFE DRINKING WATER

1. As a matter of our policy and preference, the term "Board" refers to the inclusion of the Department.
2. This statement is clearly stated in the first statement of the paragraph. However, the first sentence has been modified to read:

"Due to the recent changes in the Federal Standards, the Olinda Wastewater Treatment Facility process is no longer acceptable and must be replaced with an approved filtration system."

3. The third sentence in the second paragraph has been modified to read:

"...filters has been excellent with consistent removal well below 5."

Concerning regulatory mandates, we concur and the fourth sentence has been removed.

4. Concur, modification made.

"By Water All Things Find Life"

Printed on recycled paper 

Mr. Bruce Anderson, Ph.D.
April 3, 1997
Page 2

5. Last sentence in second paragraph has been deleted. Low pH and alkalinity has been associated with being the problem at the Olinda facility. However with the construction of the Kahakapau Reservoirs an increase in alkalinity (between 6 and 7) and pH (between 6.5 and 7) was experienced. Alkalinity and pH adjustment is currently available at the facility. Also, the Board is in the process of retesting for lead and copper in the system. Results of which will be used to enhance treatment and direct any required modification. However, under this contract, due to the tight compliance schedule, there will be no modifications to the reservoir or any additional provisions for alkalinity control.
6. Concur, sentence modified to read:

“(at an average of 70,000 gpd), discounting water required for optimal fire protection.”
7. Comment noted.
8. No response.
9. Operation and Maintenance manual will be provided.

COMMENTS ON FIGURE 4

1. Chlorination feed lines will not be modified under this contract. Feed lines are existing and therefore not shown. The CS symbol will be removed.
2. All abandoned processes will be cut and plugged. Piping from clear well to flocculation tank is existing and there are no cross-connections. Clear well is elevated will above the flocculation basin.
3. The existing sludge lagoons will have two new isolation valves installed which will allow a choice of discharge to all of the basins from either back wash or flocculation tanks.

Enclosed is a copy of the revised facility schematic figure 4.

Mr. Bruce Anderson, Ph.D.
April 3, 1997
Page 3

WASTEWATER

No response required.

Thank you for your help in expediting of this project.

Sincerely,



David R. Craddick
Director

/HK:sc
Enclosure

xc: James Okazaki, M&E Pacific, Inc.

0297204

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII



KALI WATSON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879

HONOLULU, HAWAII 96805

February 24, 1997

Board of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793

Re: Draft Environmental Assessment for the
Olinda Water Treatment Facility Upgrade
Makawao, Maui, Hawaii
TMK: (2) 2-3-06:006

1997 FEB 26 AM 9:25
MAIL ROOM

Gentlemen:

Thank you for the opportunity to comment on the Draft Environmental Assessment for the subject project.

We have reviewed the draft document and have no comments to offer at the present time.

Please call Mike Crozier, Administrator to our Land Development Division, at 586-3817, should you have any questions on this matter.

Warmest aloha,

Kali Watson, Chairman
Hawaiian Homes Commission



0297176

RECEIVED

United States
Department of
Agriculture

Our People...Our Islands...In Harmony 1997 FEB 28 PM 1:04

Natural
Resources
Conservation
Service

February 25, 1997

COUNTY OF MAUI

P.O. Box 50004
Honolulu, HI
96850

Mr. David R. Craddick, Director
Board of Water Supply
County of Maui
P.O. Box 1109
Wailuku, Hawaii 96793-7109

Dear Mr. Craddick:

Subject: Draft Environmental Assessment (DEA) - Olinda Water Treatment Facility
Upgrade, Makawao, Maui, Hawaii

We have reviewed the above mentioned document and have no comments to offer at
this time.

Thank you for the opportunity to review this document.

Sincerely,


KENNETH M. KANESHIRO
State Conservationist

ACTING

PHONE (808) 594-1888

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

February 27, 1997

M&E Pacific, Inc.
1001 Bishop Street, Pauahi Tower, Suite 500
Honolulu, HI 96813-3497

Dear Sir/Madam:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the Olinda Water Treatment Facility, Island of Maui. The County of Maui is proposing to replace existing valveless filters of the Olinda Water Treatment Facility with microfiltration units. The proposed upgrade will bring the facility in compliance with filtration requirements established by the State Department of Health.

The Office of Hawaiian Affairs has no objections at this time to the proposed upgrade. Based on information contained in the DEA, the project apparently bears no significant long-term adverse impacts on adjacent areas nor upon existing flora or fauna habitats. Furthermore, no known archaeological remains exist and the project will not significantly affect scenic resources. Please contact Lynn Lee, Acting Officer of the Land and Natural Resources Division, or Luis Manrique, should you have any questions on this matter.

Sincerely yours,

A handwritten signature in cursive script that reads "Martha Ross".

Martha Ross
Deputy Administrator

LM:lm

BENJAMIN J. CAYETANO
GOVERNOR



GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4185

March 10, 1997

The Honorable David Craddick
Board of Water Supply
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Craddick:

We submit for your response (required by Section 3435(b), Hawai'i Revised Statutes) the following comments on a draft environmental assessment (DEA) prepared by M&E Pacific, Inc., for the Olinda Water Treatment Facility, TMK 2-3-06: por. 06. Initial notice of availability of the DEA was published in the February 8, 1997, edition of the *Environmental Notice*. Please include the following in the final environmental assessment for the project:

1. A discussion of other available water treatment technologies, along with a list of facilities which use such technologies;
2. A discussion on what causes coloration in the water in excess of 150 color units; and,
3. A listing the standards next to the observed values for surface water quality on page 8.

Please include this letter and your response in the final environmental assessment for this project. If there are any questions, please call me at 586-4185. Thank you for the opportunity to comment.

Sincerely,

Handwritten signature of Leslie Segundo in cursive.

LESLIE SEGUNDO
Environmental Health Specialist

Enclosure

c: Mr. James Okazaki, M&E Pacific, Inc.
Hon. Gary Gill, Director of Environmental Quality Control



BOARD OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 243-7816 • Fax (808) 243-7833

April 30, 1997

Mr. Leslie Segundo
Environmental Specialist
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Mr. Segundo:

Re: **OLINDA WATER TREATMENT FACILITY UPGRADES - RESPONSE TO
COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT**

Thank you for your comments dated March 10, 1997 on the draft Environmental Assessment (EA) for the above-referenced project. Provided below are the responses to your comments:

Item No. 1: Alternative Technologies:

Section 8.3 has been modified to include a brief description of available water treatment technologies and facilities employing these treatment processes in the State of Hawaii.

Item No. 2: Coloration:

Section 3.0 has been modified to identify the sources of color in raw water.

Item No. 3: Standards for Water Quality Parameters:

Raw water quality listed in Section 6.1 were for characterization purposes only. Of all the parameters listed, only turbidity has the primary drinking water standard. SWTR requires that ninety-five percent (95%) of the turbidity measurements taken every month must be less than or equal to 0.5 NTU, and may not exceed 5 NTU at any time. While color is not regulated as a primary drinking water standard, levels above 15 color units generally pose a problem with aesthetics (see Section 3.0).

"By Water All Things Find Life"

Printed on recycled paper 

Mr. Leslie Segundo, OEQC
April 30, 1997
Page 2

Should you have any questions, please contact our Engineering
Division at (808) 243-7835 or myself.

Sincerely,

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI


David R. Craddick
Director

HK:as
xc: Mr. James Okazaki (M&E Pacific, Inc.)